Title: Triad STE Committee Postdoc and Student Programs

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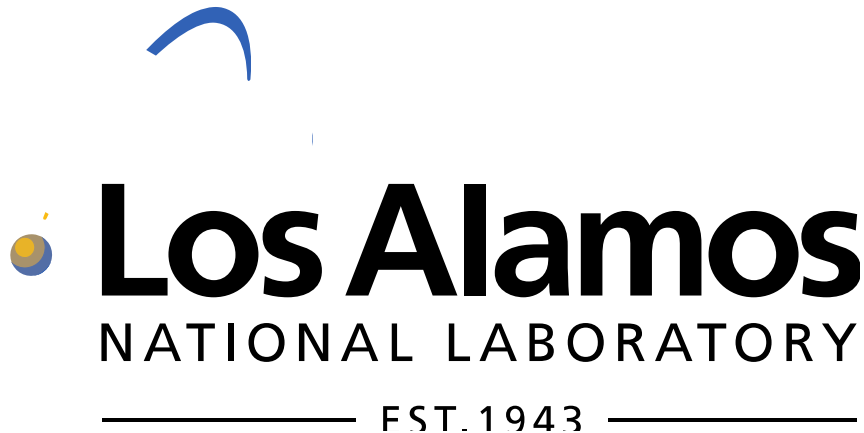Intended for: STE Board Meeting

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Triad STE Committee
Postdoc and Student Programs

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Los Alamos
NATIONAL LABORATORY
EST. 1943

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Topics

- **Introduction: the workforce of the future**

- **How we manage LANL's large student and postdoc population**

- **Postdoc Program – current status**

- **Student Program – current status**

- **Issues: diversity, mentoring and quality**

LANL students, postdocs: workforce of the future

- Our student/postdoc pipeline is crucial for recruiting the workforce of the future and uses our vast university networks.
- The Student and Postdoc Program Offices manage the processes enabling these critical early career pipelines for the institution.
- We partner with line management to create a vibrant, supportive environment for these early career employees.
- The quality of the individuals, the diversity of the pool and our investment into their experience and development will impact LANL for generations.

Percentage of total LANL population who are former students or postdocs

36%	61%	33%
All LANL employees (Reg, TRMA)	**All R&D scientists & engineers**	**Managers**
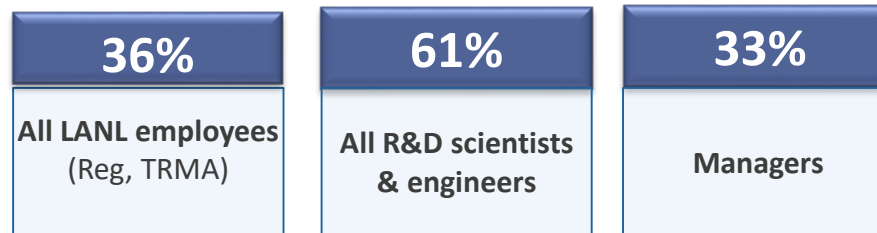
Partnerships with line organizations = Quality programs

- LANL had **1,861 students** at peak in July of 2019

- We have **454 postdocs** as of August 2019

- The Lab supported **16 summer schools** in FY19

  - Applied Machine learning Summer School
  - Nonproliferation Summer Program
  - Quantum Computing School

- Mentoring and development opportunities include:

  - Mentor training and support
  - Career development workshops
  - Annual Student Symposium
  - Annual Postdoc Research Day and Career Fair
  - Los Alamos Postdoc Association
  - Distinguished student, postdoc, and mentor awards
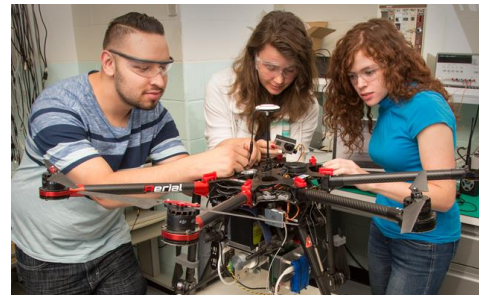
Addressing the challenges of a large student program

- Student mentor training was revamped this summer by the Deputy ADs

- DDSTE and PPO issued the student capacity memo in February 2019 establishing expectations:

  - Actively manage student count per group and by mentor

  - Encourage a two-students-per-mentor "rule of thumb"

  - Have regular and meaningful interactions and oversight

  - Ensure training and readiness of mentors

  - Provide forums for students to present their work

  - Define a proactive schedule for student hiring

- Mentor training focus group will meet in September to assess mentor training and gaps
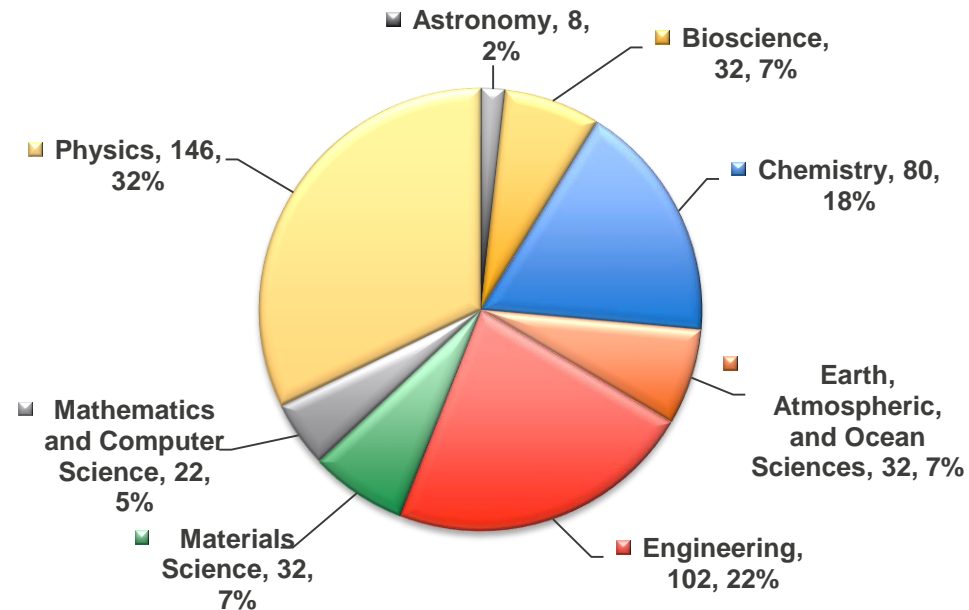
Student Survey Data

- **485 responses; 57% new and 43% returning**

- **Questioned quality of their experience, onboarding, safety and security, inclusion and housing/transportation. Some responses:**

  o   Tools to become productive: 94% less than 2 weeks

  o   Review of work plan with mentor: 91% in the first week or less

  o   Was safety taken seriously: 97.5% seriously or very seriously

  o   Was security taken seriously: 98% seriously or very seriously

  o   Mentor engagement: 84% once a week or more, 95% more than twice a month

  o   Mentor involved and supportive: 89% excellent involvement and support; 15 students indicated little or no involvement and support

  o   Opportunity to share results/accomplishments: 81.2%

- **Housing was modestly to extremely difficult for 60% of students**

Process to review, assess postdoc candidates

- We recruit globally

- Postdoc package generated by staff in technical line organization

- Postdoc Review Committee reviews all postdoc packages

- Director's and Distinguished Fellows candidates are ranked and recommendations provided to the Director and DDSTE

- In the most recent round, 75 postdoc packages were reviewed and 6 were selected as Fellows; 2 were female.

Postdocs by Field of Study

- Astronomy, 8, 2%
- Bioscience, 32, 7%
- Physics, 146, 32%
- Chemistry, 80, 18%
- Earth, Atmospheric, and Ocean Sciences, 32, 7%
- Mathematics and Computer Science, 22, 5%
- Materials Science, 32, 7%
- Engineering, 102, 22%

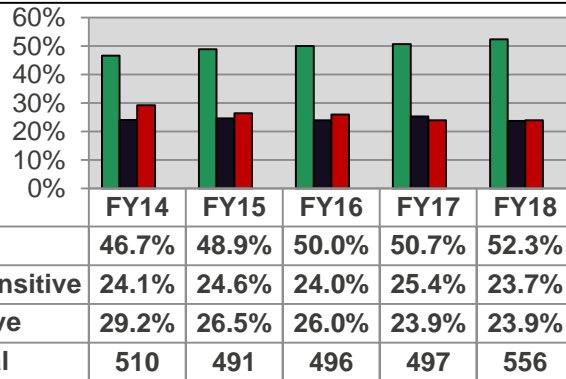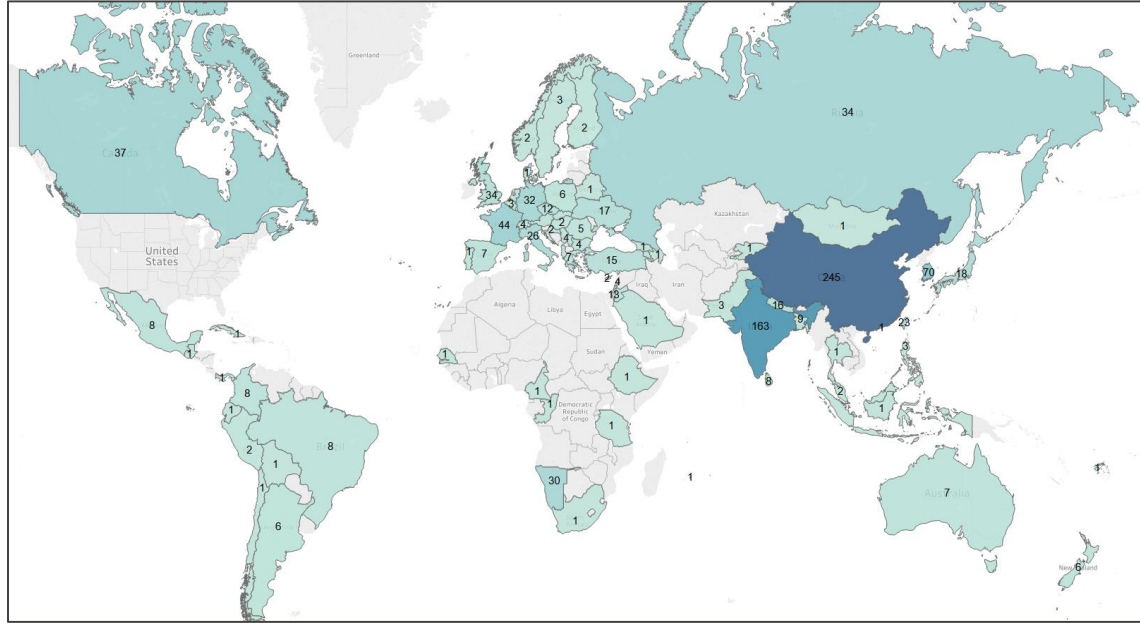# Postdocs by ALD, appointment type; majority in DDSTE

	ALDPS	ALDSC2	ALDCELS	ALDX	ALDW	ALDGS	ALDESHQSS	ALDWP	DDWP	PPO
Grand Total (454)	145.83	141.00	101.33	28.00	19.17	11.83	3.00	2.33	1.00	0.50
■ Distinguished PD Fellow (15)	2.17	9.33	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
■ Director's PD Fellow (41)	15.50	14.00	8.50	0.50	1.17	1.00	0.00	0.33	0.00	0.00
■ Other PD Fellow (15)	3.00	6.17	2.33	1.00	1.50	1.00	0.00	0.00	0.00	0.00
■ PD Research Assoc. (383)	125.17	111.50	87.00	26.50	16.50	9.83	3.00	2.00	1.00	0.50

Postdoc trends by citizenship

Current Postdoc Population by Citizenship

Total = 454	US	Non-Sensitive	Sensitive
Total = 454	227	116	111
Percentage	50.0%	25.6%	24.4%

	FY14	FY15	FY16	FY17	FY18
■ US	46.7%	48.9%	50.0%	50.7%	52.3%
■ Non-Sensitive	24.1%	24.6%	24.0%	25.4%	23.7%
■ Sensitive	29.2%	26.5%	26.0%	23.9%	23.9%
FY Total	510	491	496	497	556
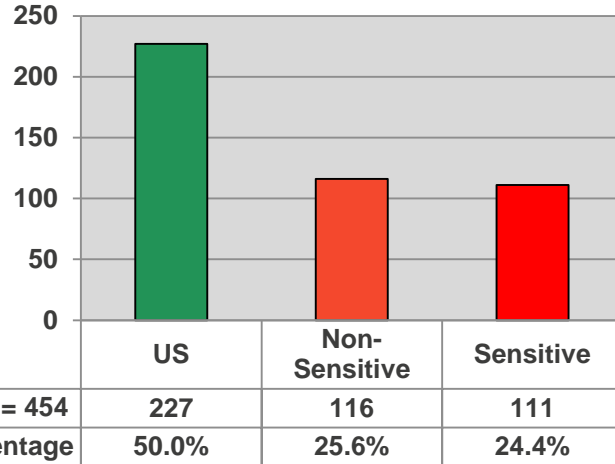
Over the past 6 years, trends indicate an increase in the number of U.S. citizens.
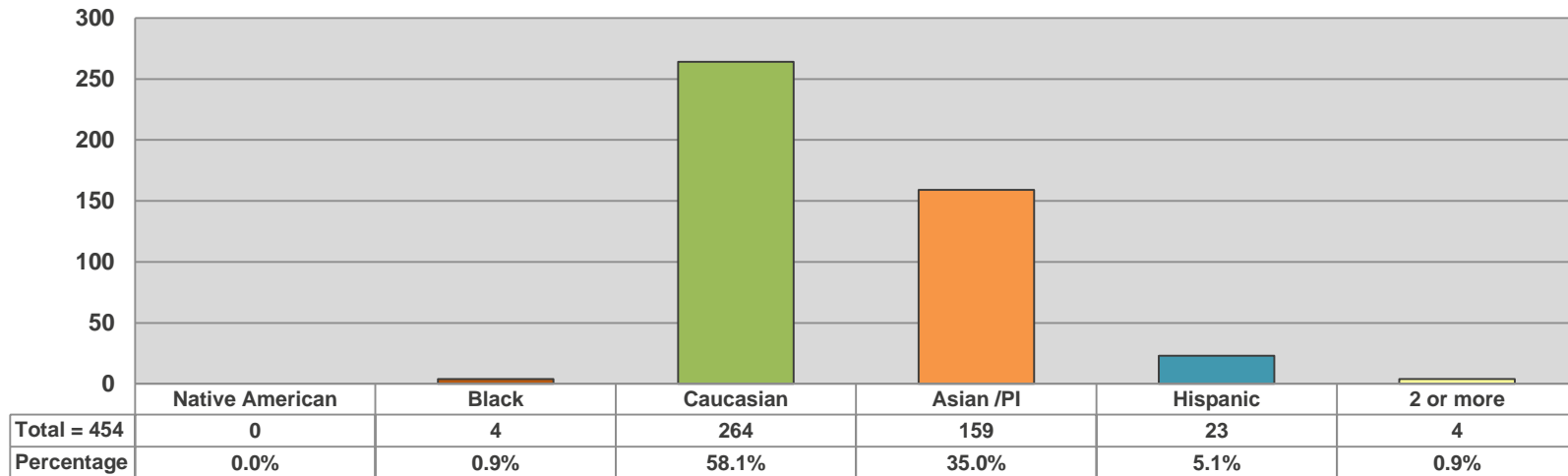
Gender diversity: how are we doing?

- Discussions about gender diversity have been a focus since 2012.

- DL managers were educated on diversity goals and unconscious bias.

- We saw an encouraging increase after this engagement.

- We need to assess our next steps in order to continue to improve.

- The August 2019 candidate cohort was 27% female.

Current Postdoc Population by Gender

Total = 454	Male	Female
	342	112
Percentage	75.3%	24.7%

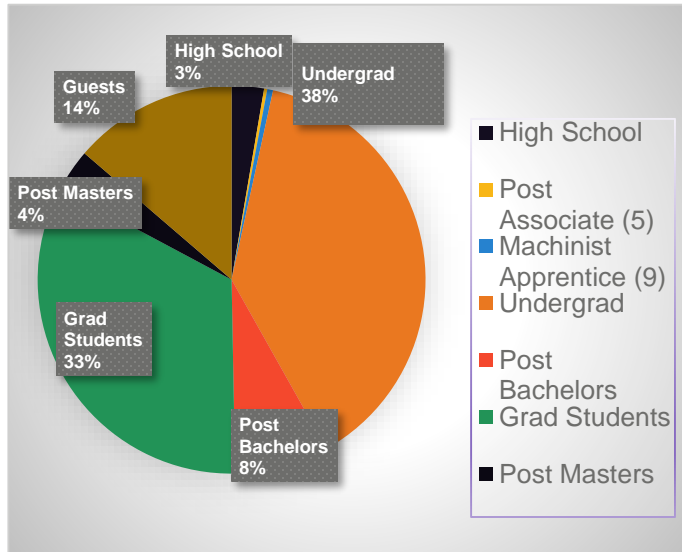|	FY14	FY15	FY16	FY17	FY18
■ Male %	79.8%	78.0%	76.8%	74.2%	74.6%
■ Female %	20.2%	22.0%	23.2%	25.8%	25.4%
FY Total	510	491	496	497	556
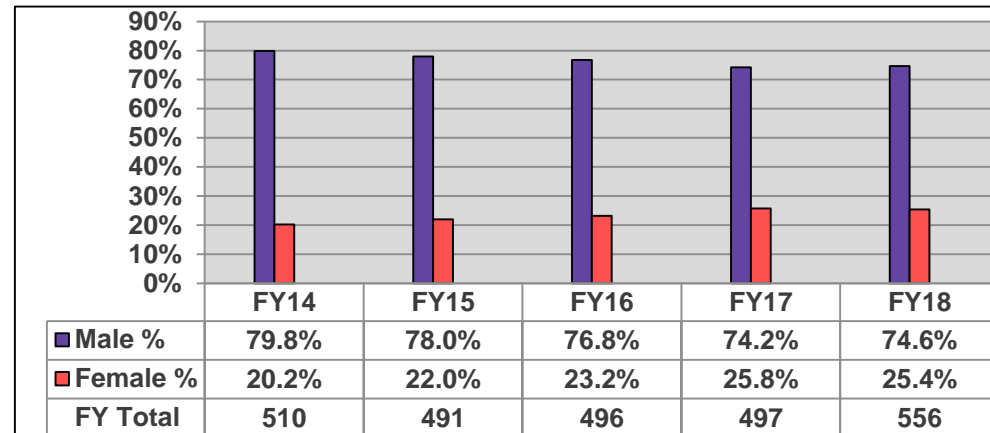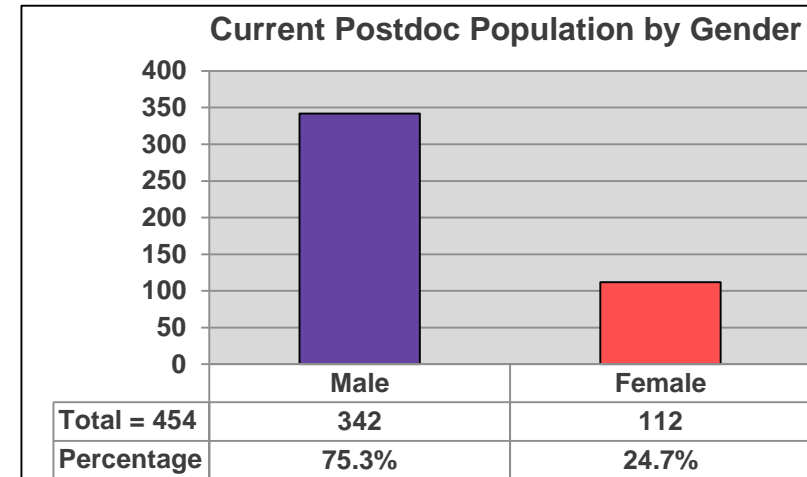
Postdocs by ethnicity

Analysis of data over the past 5 years shows that we have not made significant improvement in ethnic diversity.

Current Postdoc Population by Ethnicity

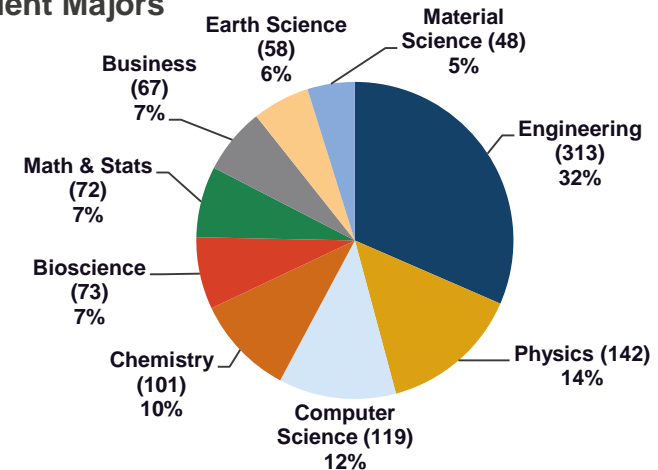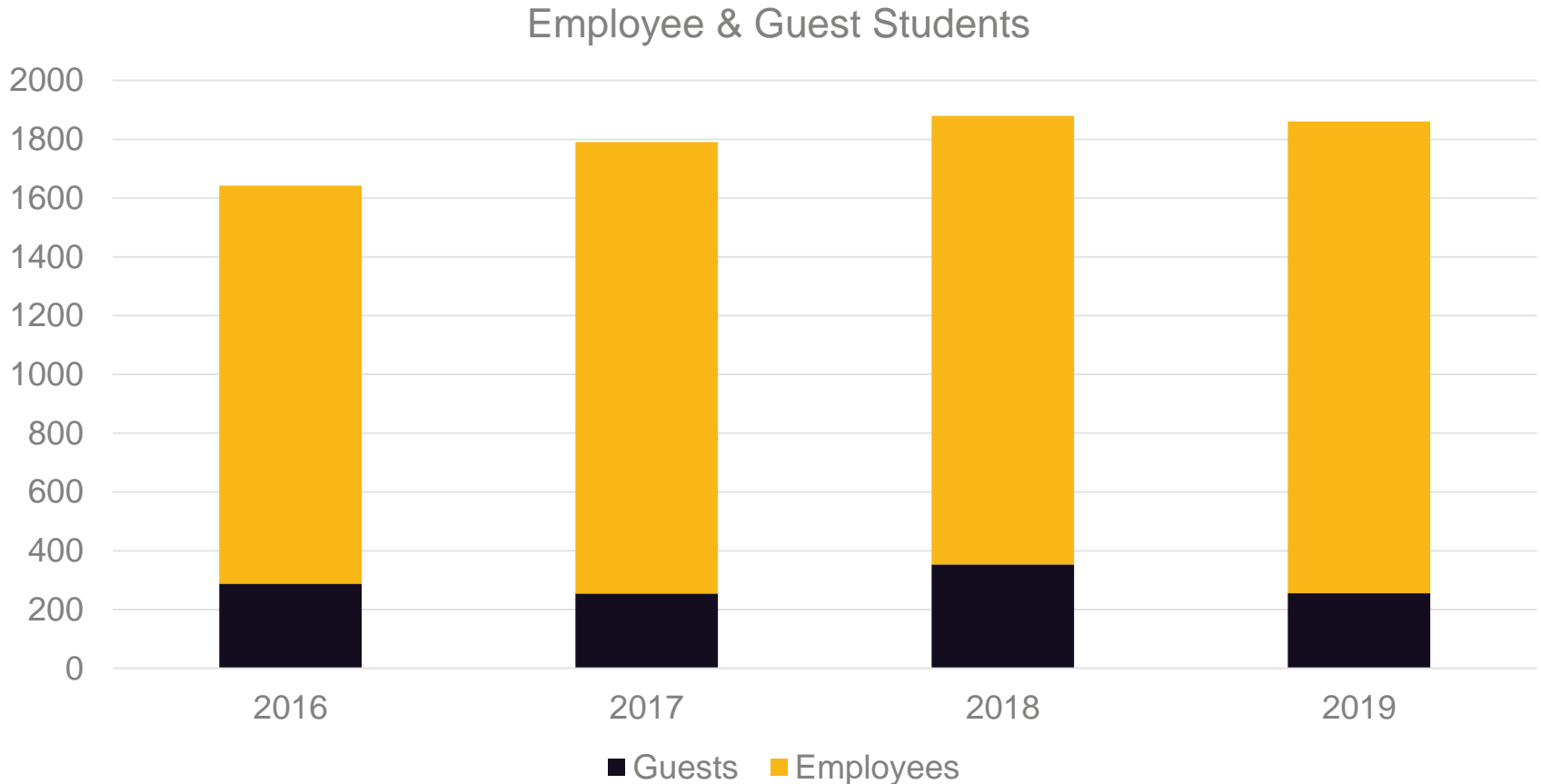| Total = 454	Native American	Black	Caucasian	Asian /PI	Hispanic	2 or more
Total = 454	0	4	264	159	23	4
Percentage	0.0%	0.9%	58.1%	35.0%	5.1%	0.9%

Data for our student pipeline

- Students are used as a pipeline in organizations across the Laboratory.

- The majority of students are in four-year or graduate degree programs.

- There were 210 students in summer school cohorts.

Pie chart — Student pipeline:
- High School 3%
- Undergrad 38%
- Guests 14%
- Post Masters 4%
- Grad Students 33%
- Post Bachelors 8%

Legend:
- High School
- Post Associate (5)
- Machinist Apprentice (9)
- Undergrad
- Post Bachelors
- Grad Students
- Post Masters

Student Majors

- Earth Science (58) 6%
- Material Science (48) 5%
- Business (67) 7%
- Engineering (313) 32%
- Math & Stats (72) 7%
- Bioscience (73) 7%
- Physics (142) 14%
- Chemistry (101) 10%
- Computer Science (119) 12%

Comparing 2016 – 2019: peak headcount

Employee & Guest Students

Student distribution by ALD

Many orgs have a significant student population.
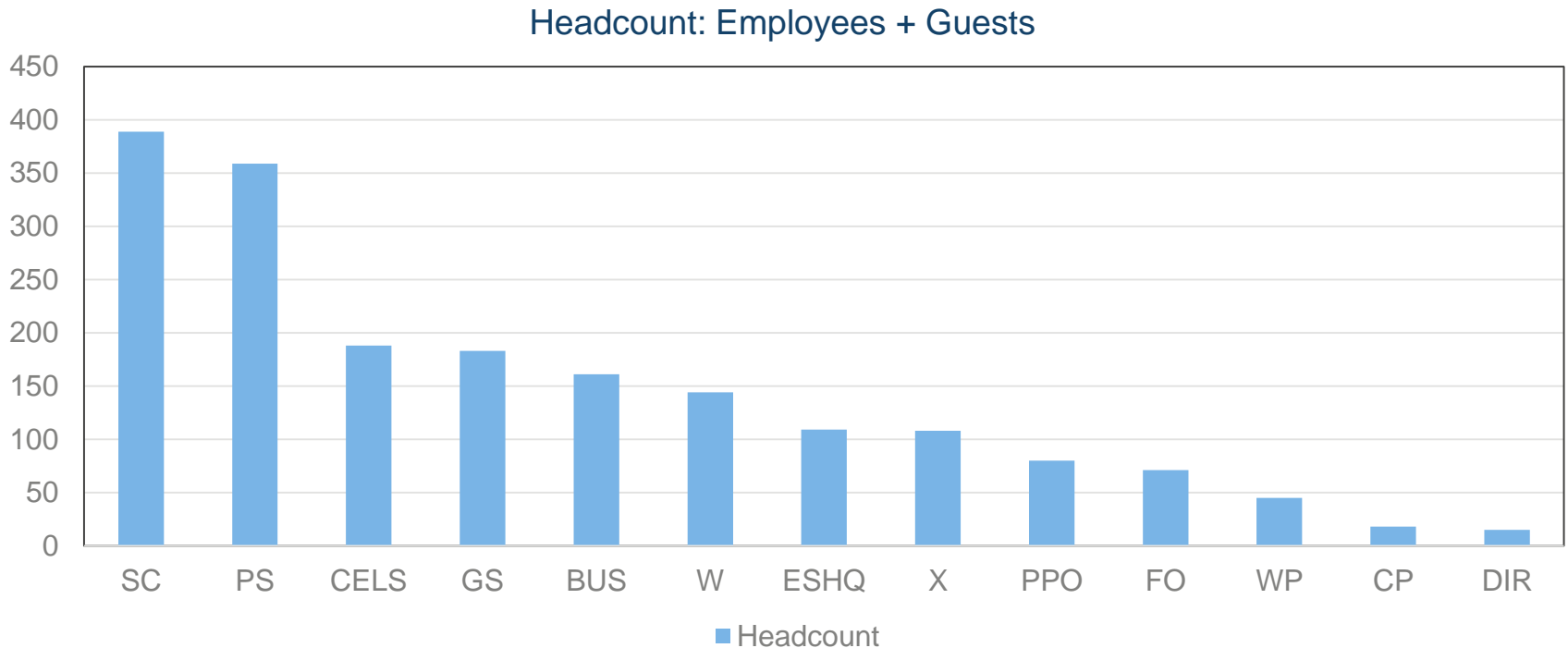
Headcount: Employees + Guests
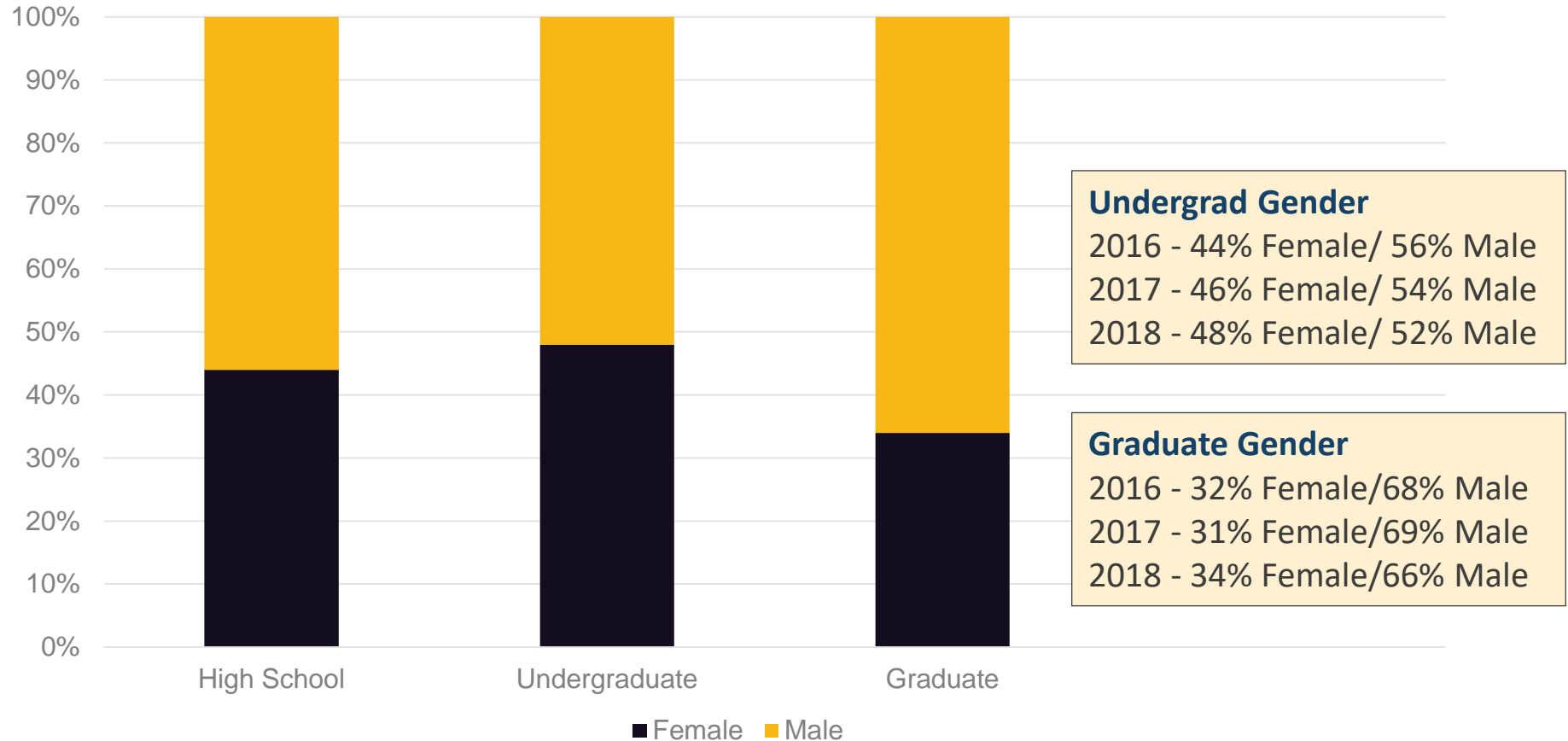
Tracking student ethnicity trends: 2019 data
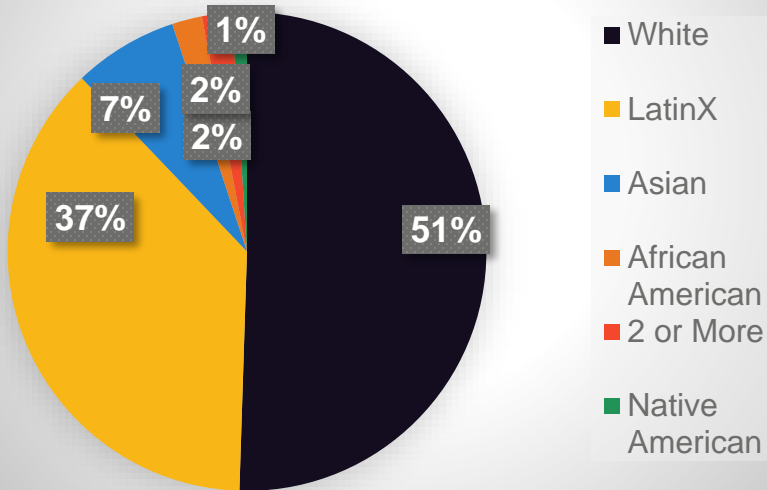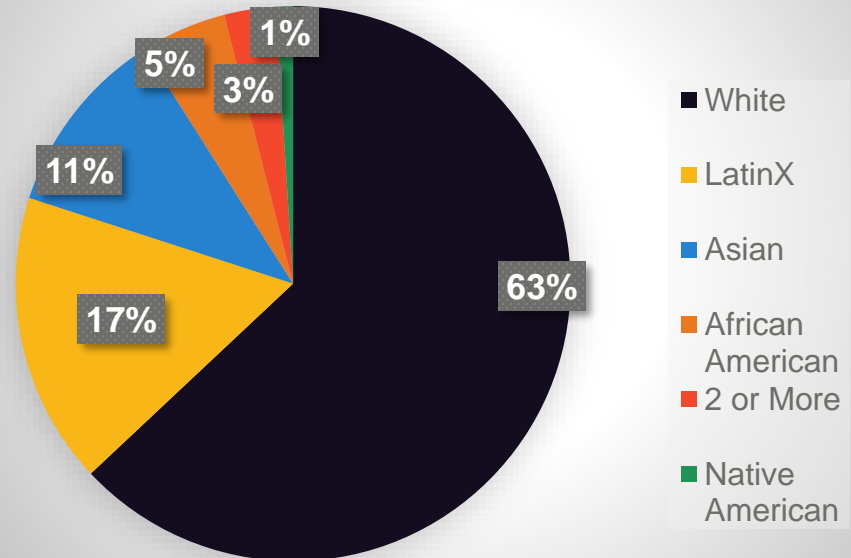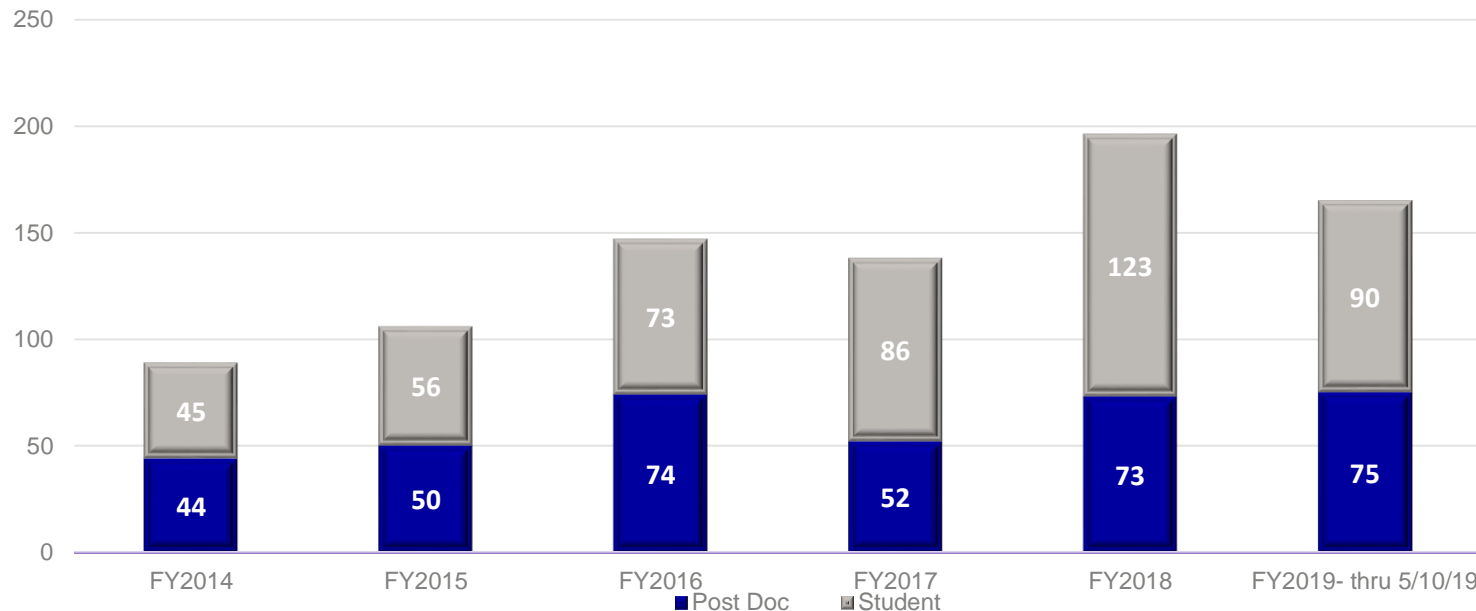
Impact of pipeline programs is increasing

- Conversion of postdocs to technical staff is one of our most highly utilized early-career pipelines.

- Student conversions are occurring in all parts of the Laboratory and the staff hired from this program has grown significantly since 2015.

Areas receiving our current attention

1. **Quality:** essential for our future

2. **Diversity:** what are the next steps to impact this broadly?

3. **Mentoring for postdocs, students and early career employees:**

   We are evaluating the content and process now.

4. **Transparency in postdoc conversion process:**

   Feedback from converted and exiting PDs indicate variability and lack of clarity in the process as it is implemented across line organizations.

5. **Ensuring uniformity for student conversions across the Laboratory**

Questions?

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